The term "fluid" as used herein refers to liquid chemicals or combinations of liquid and particulate that remains flowable, or combinations of liquid and gas vapor, that remains flowable as a liquid.

The term "fluid characteristic" refers to a fluid temperature, a fluid volatility, a fluid reactivity at ambient temperatures, a fluid acidity, a fluid viscosity, fluid density, surface tension, and thermal conductivity.

The term "specific gravity" refers to the ratio of the density of a fluid to the density of a reference fluid; equivalently, it is the ratio of the mass of a fluid to the mass of a reference fluid for the same given volume. Apparent specific gravity is the ratio of the weight of a volume of the fluid to the weight of an equal volume of the reference fluid.

The term "trailer" refers to a portable, moveable structure that preferably has wheels and a towable tongue and optionally may have brakes, and lights.

Turning now to the Figures, FIGS. **1**A-**1**D depict the automated water treatment trailer **8** according to one or more embodiments.

The automated water treatment trailer **8** (shown in FIG. **1**A) is connected to an adjacent structure **35**, such as a secondary trailer for automatically processing multiple fluids simultaneously from a plurality of chemical totes **33***a*-**33***e* contained in the adjacent structure.

In this embodiment, the additional structure **35** carries water **13** used for flushing the plurality of chemical totes **33***a*-**33***e*.

Between the chemical totes **33***a*-**33***e* and the automated water treatment trailer **8** are a plurality of chemical tote valves **57***a* through **57***e*.

The automated water treatment trailer **8** sucks chemicals selectively from the chemical totes to treat fluid **11** in a water pipe **60**.

Each fluid **11** in a water pipe **60** is treated with chemicals from the chemical totes **33***a*-**33***e* using a model that utilizes fluid characteristics and specific gravity of the fluid **11** in the water pipe **60**.

The automated water treatment trailer **8** is a secure locking trailer.

The automated water treatment trailer **8** has a frame **10**. The frame can be eight feet wide by sixteen feet long. Each trailer is specifically designed to be towable without need for a road permit for extra wide or extra long loads. The frame **10** can range in width from 5 feet to 8 feet. The frame can range in length from 10 feet to 16 feet.

The frame can be made from channel steel. The frame **10** can be made from square tubing that can be from two inches to three inches in width and from two inches to three inches in height with a hollow center in some embodiments. In other embodiments, the square tubing can be solid. Components of the frame can be welded together in an embodiment, or can be clamped or screwed or riveted in other embodiments.

The frame **10** can be formed from channel steel.

The frame **10** is to be of a size that is street legal, and strong enough to be pulled by a tow vehicle without a permit.

At least one axle **12***a* is mounted to the frame **10** and supporting the frame. The at least one axle supports a pair of tires **16***a*, **16***b*.

In embodiments, two axles **12***a* and **12***b* are depicted (see FIG. **1**B). Each axle **12***a* and **12***b* has a pair of tires, with one tire mounted on either end of the axle.

The axles **12***a* and **12***b* can be of different sizes to support different weights applied to the frame.

In an example, an axle **12***a* can range in size from a single-axle to 6-axles, 13 feet 6 in high, 53 feet 0 in long.

Multiple axle trailers provide a greater weight capacity than a single axle trailers. In some cases, the trailers can have a tandem axle at the rear of the trailer. Axles are typically made from SAE grade 41xx steel

The axles may have brakes **17**, which can be actuated by the tow vehicle. The brakes can be for each wheel, or for pairs of wheels. The brakes can be pneumatic, hydraulic or electronic.

In embodiments, the automated water treatment trailer **8** with lights, which can be powered and actuated by the tow vehicle, including running lights **15***a*, brake lights **15***b*, and turning lights **15***c*. The trailer may have clearance lights **15***d*. The trailer may have fender lights **15***e*. The lights are typically powered by the prime mover hauling the trailer, but in some cases, there may be security lights **15***f* on the trailer run by the on-board power supply, which can be a generator to provide security to the trailer.

The frame has a tongue **14** for connecting the frame to the tow vehicle.

The tongue **14** can be triangular shaped.

The tongue **14** can be welded to the frame.

The tongue **14** can be made from channel steel or square tubing and can be powder coated or painted. The coating or paint can be a static charge resistant material, to prevent the attraction of lightening to the tongue. In embodiments, the entire trailer can be grounded and painted with a coating that reduces static charge build up.

The tow vehicle, which is also known as a "prime mover" can be a SUV, a pick up or a similar truck for towing. The tow vehicle can be a forklift. A bobtail is typically too large, instead a smaller all-terrain vehicles (ATV) can be used to tow the trailer to a remote site.

The automated water treatment trailer is designed to be lightweight for towing, so that an ATV does not need additional larger wheels, or a larger tread, or extra strong brakes to use while towing the trailer.

The overall automated water treatment trailer, without chemicals is contemplated to weight from one short ton to three short tons.

In embodiments, a base **20**, creating a floor, can be mounted to the frame **10**. Operators can stand on the base inside the trailer and monitor pumping.

The base **20** can be similar to a wall of a steel cage with a flooring material over the steel portions. An operator can safely stand on the flooring material, which can be plywood, or sheets of metal.

The base **20** can be the width of the trailer and the length of the trailer not including the tongue. In embodiments, the base can be shorter than the length of the trailer, enabling a power supply or generator to rest on the frame without being contained in the wall portion of the trailer.

In another embodiment, the base **20** can be welded over the frame.

The base **20** can be made from an explosion proof plate, such as steel plate with a thickness from one-half inch to one inch, and capable of sustaining a crash without deforming. Keeping the trailer lightweight is paramount, so keeping the base lightweight is also critical, hence a thickness of one inch or less.

The base **20**, in still other embodiments, can be a rectangular frame made up of four base beams connected together with four attached side beams.

Each side beam could be attached to an intersection of two base beams at an angle of 90 degrees. Four beams connected in parallel to the base beams form a top, and the top is